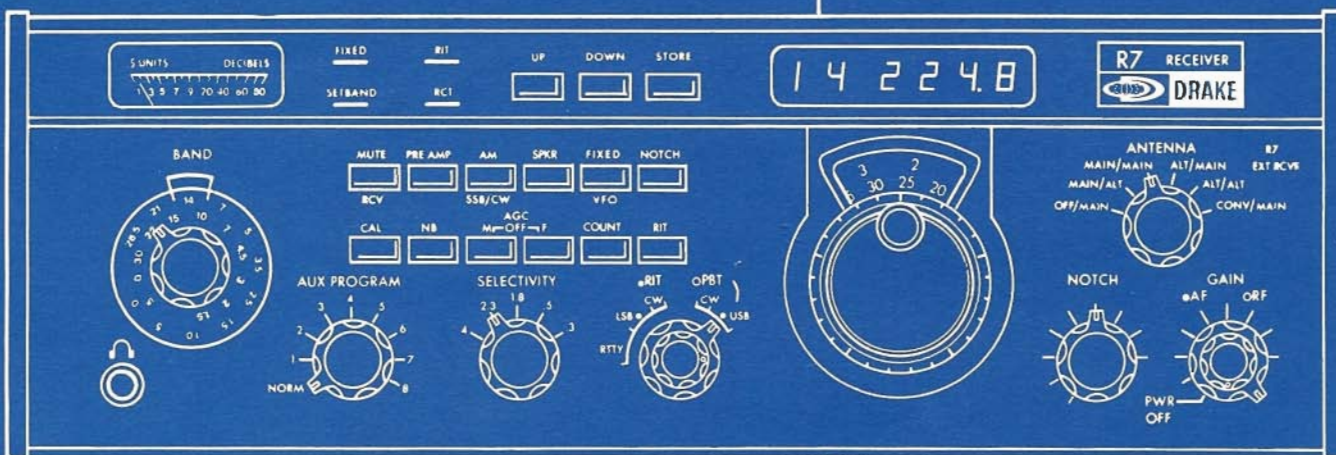




# R7

## synthesized general coverage receiver



**Full general coverage reception,  
0-30 MHz, with no gaps  
or range crystals required.**

Continuous tuning all the way from vlf thru hf. Superb state-of-the-art performance on a-m, ssb, RTTY, and cw — and it transceives with the Drake TR-7.



# R7

## synthesized general coverage receiver

**100% solid state broadband design**, fully synthesized with a permeability tuned oscillator (PTO) for smooth, continuous tuning.

**Covers the complete range 0 to 30 MHz** with no gaps in frequency coverage. Both digital and analog frequency readout.

**Special front-end circuitry** employing a high level double balanced mixer and 48 MHz "up-converted" 1st i-f for superior general coverage, image rejection and strong signal handling performance.

**Complete front-end bandpass filters** are included that operate from hf thru vlf. External vlf preselectors are not required.

**10 dB pushbutton-controlled broadband preamp** can be activated on all ranges above 1.5 MHz. Low noise design.

**Various optional selectivity filters** for cw, RTTY and a-m are switch-selected from the front panel. Ssb filter standard.

**Special new low distortion "synchro-phase" a-m detector** provides superior international shortwave broadcast reception. This new technique permits 3 kHz a-m sideband response with the use of a 4 kHz filter for better interference rejection.

**Tunable i-f notch filter** effectively reduces heterodyne interference from nearby stations.

**The famous Drake full electronic passband tuning system** is employed, permitting the passband position

to be adjusted for any selectivity filter. This is a great aid in interference rejection.

**Three agc time constants** plus "Off" are switch-selected from the front panel.

**Complete transceive/separate functions** when used with the Drake TR-7 transceiver are included, along with separate R-7 R.I.T. control.

**Special multi-function antenna selector/50 ohm splitter** is switch-selected from the front panel, and provides simultaneous dual receive with the TR-7. This makes possible the reception of two different frequencies at the same time. Main and alternate antennas and vhf/uhf converters may also be selected with this switching network.

**The digital readout** of the R-7 may be used as a 150 MHz counter, and is switched from the front panel. Access thru rear panel connector.

**The built-in power supply** operates from 100, 120, 200, 240 V-ac, 50/60 Hz, or nominal 13.8 V-dc.

**The R-7 includes a built-in speaker**, or an external Drake MS-7 speaker may be used.

**Built-in 25 kHz calibrator** for calibration of analog dial.

**Low level audio output** for tape recorder.

**Up to eight crystal controlled fixed channels** can be selected. (With Drake Aux-7 installed.)

**Optional Drake NB-7A Noise Blanker** available. Provides true impulse type noise blanking performance.

**Frequency Coverage, continuous tuning (With Drake DR-7 Digital R/O, General Coverage Board)**

**0 to 30 MHz continuous** (With or without Aux-7 board) (No gaps in frequency coverage)

**Frequency Coverage, continuous tuning (Without DR-7 Board installed)**

0.01 to 0.5 MHz 0.5 to 1.0 MHz 1.0 to 1.5 MHz 1.5 to 2.0 MHz 2.5 to 3.0 MHz 3.5 to 4.0 MHz	} Without Aux-7 Board	{ 5.0 to 5.5 MHz 7.0 to 7.5 MHz 14.0 to 14.5 MHz 21.0 to 21.5 MHz 28.5 to 29.0 MHz
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**Plus any eight additional 500 kHz segments** between 0 and 30 MHz when programmed into Aux-7 Board.

**Crystal Controlled Fixed Frequencies:** Up to eight crystal-controlled fixed frequencies within the 0-30 MHz range with Aux-7 Accessory Board. Proper 500 kHz range for desired fixed frequency is also programmed into Aux-7.

**Frequency Stability:** Less than 100 Hz drift after temperature stabilization including  $\pm 10\%$  line voltage variation.

**Digital Readout Accuracy:** (DR-7 installed) 15 PPM  $\pm$  100 Hz

**Analog Dial Accuracy:** Better than  $\pm 1$  kHz when calibrated to nearest calibrator marker.

**Modes of Operation:** Ssb, cw, RTTY, SSTV, a-m.

**Sensitivity (ssb):** 1.8-30 MHz Less than  $.20\mu\text{V}$  for 10dB S+N/N with preamp on (typically  $.15\mu\text{V}$ ) (Noise floor typically -134 dBm) Less than  $.50\mu\text{V}$  for 10 dB S+N/N without preamp (typically  $.30\mu\text{V}$ ) (Noise floor typically -128dBm). .01-1.5MHz Less than  $1.0\mu\text{V}$  for 10 dB S+N/N

**Sensitivity (a-m):** 1.8-30MHz Less than  $1.2\mu\text{V}$  for 10dB S+N/N @ 30% modulation, preamp on. Less than  $2.0\mu\text{V}$  for 10 dB S+N/N @ 30% modulation, preamp off. .01-1.5 MHz Less than  $4.0\mu\text{V}$  for 10 dB S+N/N @ 30% modulation.

**Selectivity** (2.3 kHz filter supplied): 2.3 kHz at -6 dB, 4.2 kHz at -60 dB (1.8:1) shape factor. Optional 300 Hz, 500 Hz, 1800 Hz and 4 kHz filters are available as follows:

**Ultimate Selectivity:** Greater than 100 dB

**Accessory Crystal Filters**

- SL-300 cw filter: 300 Hz @ 6 dB, 700 Hz @ 60 dB
- SL-500 cw, RTTY Filter: 500 Hz @ 6 dB, 1100 Hz @ 60 dB
- SL-1800 ssb/RTTY Filter: 1800 Hz @ 6 dB, 3600 Hz @ 60 dB
- SL-4000 a-m Filter: 4 kHz @ 6 dB, 8 kHz @ 60 dB
- SL-6000 a-m Filter: 6 kHz @ 6 dB, 12 kHz @ 60 dB

*(continued next page)*

## specifications continued

### Strong Signal Handling

Two-tone dynamic range: 99 dB \* 1.8-30 MHz  
Third order intercept point: +20 dBm preamp off  
Two-tone dynamic range: 95 dB \* 1.8-30 MHz  
Third order intercept point: +10 dBm preamp on  
Blocking: >145 dB above noise floor

*\* Measured at 100 kHz tone spacing.*

**I-f and Image Rejection:** Greater than 80 dB (48.05 MHz 1st i-f)  
(5.645 MHz 2nd i-f) (50 kHz 3rd i-f)

**Agc Performance;** Less than 4 dB audio output variation for  
100 dB input signal change above agc threshold. Agc threshold  
is typical .8 $\mu$ V with preamp off and .25 $\mu$ V with preamp on.

**Attack time:** 1 millisecond. Three selectable release times:  
Slow—2 seconds; Med—400 m sec; Fast—75 m sec. Also,  
"Off" position is provided.

**Antenna Input Impedance:** Nominal 50 ohms

**Audio Output:** 2.5 watts with less than 10% T.H.D. into nominal  
4 ohm load.

**Power Requirements:** 100/120/200/240 V-ac  $\pm$ 10%, 50/60 Hz, 60  
watts or 11.0 to 16.0 V-dc (13.8 V-dc nominal), 3 amps

**External Counter Mode (DR-7 installed):** Readout: to 100 Hz.  
Accuracy: 15 PPM  $\pm$ 100 Hz. Maximum input frequency: 150  
MHz. Input level range: 50 mV to 2 V rms.

### Dimensions/Weight:

Depth— 13.0 in (33.0 cm) excluding knobs  
and connectors.  
Width— 13.6 in (34.6 cm)  
Height— 4.6 in (11.6 cm) excluding feet  
Weight— 18.4 lbs (8.34 kg)

## Optional accessories available

Model 1531 Drake MS-7 Speaker

Model 7021 Drake SL-300 Cw Filter, 300 Hz

Model 7022 Drake SL-500 Cw Filter, 500 Hz

Model 7023 Drake SL-1800 Ssb/RTTY Filter, 1800 Hz

Model 7024 Drake SL-6000 A-m Filter, 6.0 kHz

Model 7026 Drake SL-4000 A-m Filter, 4.0 kHz

Model 1532 Drake NB-7A Noise Blanker

Model 1536 Drake Aux-7 Range Program/Fixed-Frequency Board

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